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| APPLICATION NO. | FILING DATE | FIRST NAMED INVENTOR | ATTORNEY DOCKET NO. | CONFIRMATION NO. |
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10/045,225

11/09/2001

Toshihiro Fukuda

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04/07/2004

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EXAMINER

STEVENSON, ANDRE C

ART UNIT

PAPER NUMBER

2812

DATE MAILED: 04/07/2004

Please find below and/or attached an Office communication concerning this application or proceeding.

| | | | |
|------------------------------|---------------------------------|-----------------------------------|--|
| Office Action Summary | Application No. 10/045,225 | Applicant(s) FUKUDA, TOSHIHIRO | |
| | Examiner Andre' C. Stevenson | Art Unit 2812 | |

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136 (a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).

Status

- 1) ☐ Responsive to communication(s) filed on ____.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☐ Claim(s) ____ is/are pending in the application.
- 4a) Of the above claim(s) ____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) ____ is/are allowed.
- 6) ☒ Claim(s) 1-6 is/are rejected.
- 7) ☐ Claim(s) ____ is/are objected to.
- 8) ☐ Claims ____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on ____ is/are objected to by the Examiner.
- 11) ☐ The proposed drawing correction filed on ____ is: a) ☐ approved b) ☐ disapproved.
- 12) ☐ The oath or declaration is objected to by the Examiner.

Priority under 35 U.S.C. § 119

- 13) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d).
- a) ☐ All b) ☐ Some * c) ☐ None of the CERTIFIED copies of the priority documents have been:
1. ☐ received.
2. ☐ received in Application No. (Series Code / Serial Number) ____.
3. ☐ received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

- 14) ☐ Acknowledgement is made of a claim for domestic priority under 35 U.S.C. & 119(e).

Attachment(s)

- | | |
|---|--|
| 15) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892) | 18) <input type="checkbox"/> Interview Summary (PTO-413) Paper No(s). ____. |
| 16) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | 19) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152) |
| 17) <input type="checkbox"/> Information Disclosure Statement(s) (PTO-1449) Paper No(s) ____. | 20) <input type="checkbox"/> Other: _____ |

Detail Action

Acknowledgment is made of applicant's claim for foreign priority under 35 U.S.C. 119(a)-(d). The certified copy has been filed in parent Application No. 10045225, filed on November 9, 2001

Claim Rejections - 35 USC § 102

The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

Claim 1 through 6 are rejected under 35 U.S.C. 102(b) as being unpatentable by Ueda et al (U.S. Pat. No.5852479).

Ueda et al (U.S. Pat. No.5852479), for **Claim #1**, a liquid crystal display element comprising: a liquid crystal layer; a pixel electrode portion having a plurality of pixel apertures for transmitting light (**Fig. 9, item 20, Column 13, lines 41 through 65**); and at least one microlens array having a plurality of microlenses arranged in a two-dimensional form on at least one of a light incident side and a light emergent side of said liquid crystal layer corresponding to said pixel apertures (**Fig. 8, item 14R, G & B, Column 12, lines 55 through 67, Column 13, lines 1 through 5**), wherein each of said microlenses comprises: a light-collecting lens having at least one lens surface in the optical axis direction for collecting incident light toward corresponding one of said

pixel apertures (**Column 13, lines 41 through 65**); and a field lens having at least one lens surface in the optical axis direction so that the focal position thereof substantially coincides with the principal point of said light-collecting lens (**Fig. 15a & b, 5 & 21, Column 17, lines 52 through 64**).

With respect to **Claim #2**, a liquid crystal display element according to Claim 1, wherein the focal position of the entirety of each of said microlenses substantially coincides with said corresponding pixel aperture, is taught by Ueda et al (U.S. Pat. No.5852479), (Fig. 15a & b, 5 & 21, Column 26, lines 1 through 26).

Furthermore, **Claim #3**, a liquid crystal display element according to Claim 1, wherein, when incident light having a divergence angle component with respect to the optical axis emerges from said microlens array, the divergence angle component is removed by the optical action of said field lens, and the emergent angle of the incident light substantially coincides with the emergent angle of a principal ray which enters in parallel with the optical axis, is taught by Ueda et al (U.S. Pat. No.5852479) (Fig. 9, 15 and 18a & b, Item 105, 109 and 112, Column 17, lines 52 through 64).

Considering now, **Claim #4**, a liquid crystal display element according to Claim 1, wherein said liquid crystal display element is applied to a projection type liquid crystal display device which projects light transmitted through said liquid crystal display element via a projection lens, and the numerical aperture of each of said microlens

substantially coincides with the F-number of said projection lens, is taught by Ueda et al (U.S. Pat. No.5852479) (Fig. 22, Column 28, lines 45 through 55).

With respect to **Claim #5**, a liquid crystal display element according to Claim 1, wherein each of said microlenses is formed of one or more of a spherical surface, an aspherical surface, and a Fresnel surface, is taught by Ueda et al (U.S. Pat. No.5852479) (Fig. 9, 15 and 18a & b, Item 105, 109 and 112, Column 17, lines 52 through 64).

Furthermore, **Claim #6**, a projection type liquid crystal display device comprising: a light source for emitting light; a liquid crystal display element for optically modulating incident light; and a projection lens for projecting the light modulated by said liquid crystal display element, wherein said liquid crystal display element comprises: a liquid crystal layer; a pixel electrode portion having a plurality of pixel apertures for transmitting light; and at least one microlens array having a plurality of microlenses arranged in a two-dimensional form on at least one of a light incident side and a light emergent side of said liquid crystal layer corresponding to said pixel apertures, and wherein each of said microlenses comprises: a light-collecting lens having at least one lens surface in the optical axis direction for collecting incident light toward corresponding one of said pixel aperture; and a field lens having at least one lens surface in the optical axis direction so that the focal position thereof substantially coincides with the principal point of said light-collecting lens, is taught by Ueda et al

(U.S. Pat. No.5852479) (Fig. 9, item 20, Column 13, lines 41 through 65, Fig. 8, item 14R, G & B, Column 12, lines 55 through 67, Column 13, lines 1 through 5, Column 13, lines 41 through 65, Fig. 15a & b, 5 & 21, Column 17, lines 52 through 64).

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866 – 217 – 9197 (toll-free).

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Andre' Stevenson whose telephone number is (571) 272 1683. The examiner can normally be reached on Monday through Friday from 7:30 am to 4:30 pm.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, John Niebling, can be reached on (571) 272 1679. The fax phone number for the organization where this application or proceeding is assigned is (703) 308 7724.

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the receptionist whose telephone number is (703) 308

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0956. Also, the proceeding numbers can be used to fax information through the Right

Fax system;

(703) 872-9306


John F. Niebling
Supervisory Patent Examiner
Technology Center 2800

Andre' Stevenson

Art Unit 2812

04/01/04